Magnetic reconnection studies @ISC-Torino

Daniela Grasso[1], Dario Borgogno[1,2], Chiara Marchetto[1]
[1] CNR-Istituto dei Sistemi Complessi and Politecnico di Torino, Italy
[2] INAF – Istituto di Astrofisica e Planetologia Spaziale, Roma

The Plasma Unit of the Institute of Complex Systems of the CNR at the Politecnico di Torino focuses on the theoretical and numerical analysis of magnetic reconnection processes in plasmas of interest for both space and fusion applications. In particular, we study the fundamental processes that govern the interaction between magnetic reconnection and fluid turbulence [1,2], the instability of plasmoids in a turbulent plasma [3], the control of magnetic islands [4] and reconnection instabilities driven by runaway electrons in a post-disruption plasma [5]. Here, we present the main results achieved so far and outline our ongoing activities.

Reference:

[1] D. Grasso et al., Phys. Plasmas 27, 012302, 2020.
[2] C. Marchetto et al., Submitted to Physics of Plasmas.
[3] D. Borgogno et al., The Astrophysical Journal, 929:62 (10pp), 2022.
[4] D. Borgogno et al., Phys. Plasmas 21, 060704, 2014.
[5] D. Borgogno et al., to be submitted to Physics of Plasmas.